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EXAMINER

GUILL, RUSSELL L

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/825,218

Applicant(s)

NASR ET AL.

Examiner

Russell L. Guill

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-106 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-106 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/23/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/25/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 - 106 have been examined. Claims 1 - 106 have been rejected.

Claim Objections

2. Claim 29 objected to because of the following informalities: Dependent claim 29 appears to declare an incorrect parent claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

3.1.1. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3.2. Claims 8, 10, 27, 46, 48, 63, 76 and 89 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims recite "manufacturing standards" which is not contained in the specification.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1, 59 and 98 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory material under 35 U.S.C. 101. It appears that the recited steps can be performed by a person using pencil and paper.
6. Claims 21 and 101 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. It appears that the steps do not require hardware, and are at best directed to an arrangement of software, and are therefore not tangible.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 59 - 62, 72 - 75 and 85 - 88 are rejected under 35 U.S.C. 102(b) as being anticipated by Watson (U.S. Patent 6,581,045).

8.1. Regarding claims 59 and 85, Watson teaches:

8.1.1. A method for assessing remanufacturability of one or more items in an apparatus (Title; and Abstract; and column 2, lines 27 - 58; and column 4, lines 35 - 40; and column 6, lines 5 - 17 and 49 - 60).

8.1.2. A computer readable medium having stored thereon instructions which when executed by at least one processor perform steps (figures 12 and 13; especially figure 12, element 280).

8.1.3. Obtaining one or more assessments of the one or more items (column 3, lines 32 - 50; and column 5, lines 55 - 67; and column 6, lines 1 - 17 and 29 - 45).

8.1.4. Assessing a plurality of remanufacturing options for each of the items based on the one or more assessments to identify which of the plurality of remanufacturing options are viable (column 4, lines 35 - 42; and column 5, lines 55 - 67; and column 6, lines 8 - 18; and column 9, lines 5 - 48, especially lines 44 - 48).

8.2. Regarding claim 72, Watson teaches:

8.2.1. A system for assessing remanufacturability of one or more items in an apparatus (Title; and Abstract; and column 2, lines 27 - 58; and column 4, lines 35 - 40; and column 6, lines 5 - 17 and 49 - 60).

- 8.2.2. An item assessment processing system that obtains one or more assessments of the one or more items (column 3, lines 32 - 50; and column 5, lines 55 - 67; and column 6, lines 1 - 17 and 29 - 45).
- 8.2.3. A remanufacturing assessment system that assesses a plurality of remanufacturing options for each of the items based on the obtained one or more assessments to identify which of the plurality of remanufacturing options are viable (column 4, lines 35 - 42; and column 5, lines 55 - 67; and column 6, lines 8 - 18; and column 9, lines 5 - 48, especially lines 44 - 48).
- 8.3. Regarding claims 60, 73 and 86, Watson teaches:
- 8.3.1. Determining the overall condition of each of the items based on obtained data (column 3, lines 32 - 50; and column 5, lines 55 - 67; and column 6, lines 1 - 17 and 29 - 45).
- 8.4. Regarding claims 61, 74 and 87, Watson teaches:
- 8.4.1. Determining an overall condition of each of the items further comprises obtaining assessments of one or more physical conditions for each of the items, wherein the overall condition of each of the items is based on the assessed physical conditions of the item (column 3, lines 32 - 50; ; and column 6, lines 39 - 60).
- 8.5. Regarding claims 62, 75 and 88, Watson teaches:
- 8.5.1. Determining whether each of the items satisfies one or more operation specifications based on the obtained data (column 3, lines 32 - 50; and column 4, lines 13 - 20; and column 8, lines 40 - 47; especially the performance estimate factor).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
- A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
10. Claims 1 - 2, 4, 7, 11 - 18, 20 - 23, 26, 29 - 36, 38 - 40, 42, 45, 49 - 56, 58, 65 - 67, 70 - 71, 78 - 80, 83 - 84, 91 - 93, 96 - 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (U.S. Patent 6,581,045) in view of Onodera (Onodera, Katsushige; "Effective Techniques of FMEA at Each Life-Cycle Stage", 1997, Proceedings of the Annual Reliability and Maintainability Symposium).
- 10.1. Regarding claims 1, 21 and 39, Watson teaches:

- 10.1.1. A system and method for assessing remanufacturability of one or more items in an apparatus (Title; and Abstract; and column 2, lines 27 - 58; and column 4, lines 35 - 40; and column 6, lines 5 - 17 and 49 - 60).
- 10.1.2. A computer readable medium having stored thereon instructions which when executed by at least one processor perform steps (figures 12 and 13).
- 10.1.3. Determining an overall condition of each of the items based on obtained data (column 3, lines 32 - 50; and column 5, lines 55 - 67; and column 6, lines 1 - 17 and 29 - 45).
- 10.1.4. Determining whether each of the items satisfies one or more operation specifications based on the obtained data (column 3, lines 32 - 50; and column 4, lines 13 - 20; and column 8, lines 40 - 47; especially the performance estimate factor).
- 10.1.5. Assessing a plurality of remanufacturing options for each of the items based on the determined overall conditions for each of the items to identify which of the plurality of remanufacturing options are viable (column 4, lines 35 - 42; and column 5, lines 55 - 67; and column 6, lines 8 - 18; and column 9, lines 5 - 48, especially lines 44 - 48).
- 10.2. Regarding claims 1, 21 and 39, Watson does not specifically teach:
- 10.2.1. Determining a risk priority of each of the items based on the obtained data.
- 10.2.2. Assessing a plurality of remanufacturing options for each of the items based on the determined overall conditions, and the determined risk priority for each of the items to identify which of the plurality of remanufacturing options are viable.
- 10.3. Regarding claims 1, 21 and 39, Onodera teaches:
- 10.3.1. Determining a risk priority of each of the items based on the obtained data (pages 54 - 55, sections 5, 5.1, and 5.2).
- 10.3.2. Assessing a plurality of remanufacturing options for each of the items based on the determined risk priority for each of the items to identify which of the plurality of remanufacturing options are viable (pages 54 - 55, sections 5, 5.1, and 5.2; especially section 5.2, second paragraph regarding analyses of maintenance).
- 10.4. The motivation to use the art of Onodera with the art of Watson would have been the statement recited in Onodera that the RPN approach is used in analyses of maintenance efforts (page 55, section 5.2), and that Failure Mode and Effects Analysis is especially useful in maintainability analyses (page 50, section Summary & Conclusions, first paragraph), and further, that Failure Mode and Effects Analysis is useful in diagnosis of degradation of equipment (page 54, section 4.5). Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Onodera with the art of Watson to produce the claimed invention.

10.5. Regarding claims 2, 22 and 40, Watson teaches:

10.5.1. Collecting the obtained data on each of the items (column 7, lines 15 - 20; and column 18, lines 31 - 44).

10.6. Regarding claims 4, 23 and 42, Watson teaches:

10.6.1. Determining what types of the obtained data need to be collected (column 19, line 21 - 35; it would have been obvious that data such as year constructed would have been researched, and the computer prompts for the required information to be collected).

10.7. Regarding claims 7, 26 and 45, Watson teaches:

10.7.1. Determining an overall condition of each of the items further comprises assessing of one or more physical conditions for each of the items, wherein the overall condition of each of the items is based on the assessed physical conditions of the item (column 3, lines 32 - 50; ; and column 6, lines 39 - 60).

10.8. Regarding claims 11, 29, 49, 66, 79 and 92, Watson does not specifically teach:

10.8.1. Determining one or more failure modes for each of the items.

10.8.2. Determining one or more causes for each of the failure modes.

10.8.3. Determining one or more effects of each of the failure modes.

10.8.4. Determining a severity rating for each of the effects.

10.8.5. Determining an occurrence rating for each of the effects, wherein the risk priority is derived from the severity rating and the occurrence rating for each of the causes.

10.9. Regarding claims 11, 29, 49, 66, 79 and 92, Onodera teaches:

10.9.1. Determining one or more failure modes for each of the items (page 52, section 4.1, second paragraph, items a and c; and page 52, table 1, columns 1 and 3).

10.9.2. Determining one or more causes for each of the failure modes (page 52, section 4.1, second paragraph, items a and d; and page 52, table 1, columns 1 and 4).

10.9.3. Determining one or more effects of each of the failure modes (page 52, section 4.1, second paragraph, items a and e; and page 52, table 1, columns 1 and 5).

10.9.4. Determining a severity rating for each of the effects (page 55, table 8 and section 5.2).

10.9.5. Determining an occurrence rating for each of the effects (page 55, table 9 and section 5.2), wherein the risk priority is derived from the severity rating and the occurrence rating for each of the causes (page 55, section 5.2).

10.10. Regarding claims 12, 30, 50, 67, 80 and 93, Watson does not specifically teach:

10.10.1. The effects comprise at least one of a local effect, a secondary effect, and an ultimate effect.

10.11. Regarding claims 12, 30, 50, 67, 80 and 93, Onodera teaches:

- 10.11.1. The effects comprise a local effect and an ultimate effect (page 52, section 4.1, second paragraph, items a and e; and page 52, table 1, columns 1 and 5).
- 10.12. Regarding claims 13, 31, 51, 70, 83 and 96, Watson teaches:
- 10.12.1. That the remanufacturing options comprise a restore option and a replace option (Abstract)
- 10.13. Regarding claims 14, 32, 52, 71, 84 and 97, Watson teaches:
- 10.13.1. Identifying which of the plurality of remanufacturing options identified as viable is optimal (column 6, lines 6 - 17).
- 10.14. Regarding claims 15, 33 and 53, Watson teaches:
- 10.14.1. Obtaining cost data on each of the remanufacturing options for each of the items (figure 1, item 158; and column 2, lines 19 - 41; and column 4, lines 55 - 59).
- 10.15. Regarding claims 16, 34 and 54, Watson teaches:
- 10.15.1. Reassessing the plurality of remanufacturing options for each of the items based on the assessing of the plurality of the remanufacturing options and the obtained cost (column 6, lines 7 - 17).
- 10.16. Regarding claims 17, 35 and 55, Watson teaches:
- 10.16.1. Analyzing the value of each of the remanufacturing options based on two or more factors (figure 17; and column 25, lines 19 - 42).
- 10.17. Regarding claims 18, 36 and 56, Watson teaches:
- 10.17.1. At least one of the factors is a cost for each of the remanufacturing options (figure 17; and column 25, lines 19 - 42).
- 10.18. Regarding claims 20, 38 and 58, Watson teaches:
- 10.18.1. Analyzing an economic cost for at least one of the viable remanufacturing options (column 6, lines 6 - 17; and column 9, lines 42 - 60).
- 10.19. Regarding claim 65, 78 and 91, Watson does not specifically teach:
- 10.19.1. Obtaining one or more assessments comprises determining a risk priority of each of the items based on the obtained data.
- 10.20. Regarding claims 65, 78 and 91, Onodera teaches:
- 10.20.1. Obtaining one or more assessments comprises determining a risk priority of each of the items based on the obtained data (pages 54 - 55, sections 5, 5.1, and 5.2).
11. Claims 3 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson and Onodera, in view of common knowledge in the art.
- 11.1. Regarding claims 3 and 41, Watson teaches:
- 11.1.1. Obtaining at least a portion of the data from stored information on each of the items (figure 1, element 134; and column 8, lines 58 - 64; and column 24, lines 46 - 50).

- 11.1.2. Examining each of the items to obtain at least a portion of the data (column 7, lines 15 - 20).
- 11.2. Regarding claims 3 and 41, Watson does not specifically teach:
 - 11.2.1. Researching each of the items to obtain at least a portion of the data.
- 11.3. Regarding claims 3 and 41, Official Notice is taken that it was old and well known to the ordinary artisan at the time of invention to research data for an item. The motivation to combine would have been the need to obtain data needed to evaluate alternatives and make a decision regarding remanufacturing options.
- 12. Claims 5 - 6, 24 - 25 and 43 - 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson and Onodera, in view of MilStd1629A (MIL-STD-1629A, "Military Standard procedures for performing a failure mode, effects and criticality analysis", 24 November 1980).
 - 12.1. Regarding claims 5, 24 and 43, Watson teaches:
 - 12.1.1. Identifying one or more systems in the apparatus (column 2, line 67; and column 3, lines 1 - 5; and column 2, lines 41 - 54).
 - 12.1.2. Identifying components in each of the systems (column 2, line 67; and column 3, lines 1 - 5; and column 2, lines 41 - 54).
 - 12.1.3. Assessing a viability of a plurality of remanufacturing options for each of the items is based on the system and components (column 2, line 67; and column 3, lines 1 - 5; and column 2, lines 41 - 54; and column 6, lines 29 - 35; and column 26, lines 32 - 44).
 - 12.2. Regarding claims 5, 24 and 43, Watson does not specifically teach:
 - 12.2.1. Determining a functional hierarchy and interrelation of the systems and components, wherein assessing a viability of a plurality of remanufacturing options for each of the items is also based on the functional hierarchy and interrelation of the system and components.
 - 12.3. Regarding claims 5, 24 and 43, MilStd1629A teaches:
 - 12.3.1. Determining a functional hierarchy and interrelation of the systems and components (page 101-9, figure 101-1 Example of a functional block diagram)
 - 12.4. The motivation to use the art of MilStd1629A with the art of Watson would have been obvious given the statement in MilStd1629A that its use is called for in maintainability and maintenance plan analysis (page iii, Foreword, last paragraph), and its use in maintenance requirements (section 1. SCOPE, paragraph 1.1). Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of MilStd1629A with the art of Watson to produce the claimed invention.
 - 12.5. Regarding claims 6, 25 and 44, Watson does not specifically teach:
 - 12.5.1. Identifying one or more subsystems, wherein the determining a functional hierarchy and interrelation determines the functional hierarchy and interrelation of the systems, subsystems and

components, wherein the assessing a viability of a plurality of remanufacturing options for each of the items is also based on the functional hierarchy and interrelation of the systems, subsystems and components.

12.6. Regarding claims 6, 25 and 44, MilStd1629A teaches:

12.6.1. Identifying one or more subsystems, wherein the determining a functional hierarchy and interrelation determines the functional hierarchy and interrelation of the systems, subsystems and components (page 103-4, figure 103.1 Example of FMECA- maintainability information worksheet format, upper left quadrant, elements SYSTEM/SUBSYSTEM DESCRIPTION and SYSTEM/SUBSYSTEM NOMENCLATURE; and page 101-9, figure 101-1 Example of a functional block diagram).

13. Claims 8 - 9, 27 - 28 and 46 - 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson and Onodera, in view of Busch (U.S. Patent 6,052,631).

13.1. Regarding claims 8, 27 and 46, Watson does not specifically teach:

13.1.1. Determining one or more component functions associated with each component.

13.1.2. Determining one or more manufacturing standards for each of the components, wherein the operations specifications comprise the component functions and the manufacturing standards.

13.2. Regarding claims 8, 27 and 46, Onodera teaches:

13.2.1. Determining one or more component functions associated with each component (page 52, section 4.1, paragraph 2, items labeled a and b).

13.3. Regarding claims 8, 27 and 46, Busch teaches:

13.3.1. Determining one or more manufacturing standards for each of the components (figure 13, element 1302; and figure 15, element 1504; and column 6, lines 14 - 22).

13.4. The motivation to use the art of Busch with the art of Watson would have been obvious given the benefit recited in Busch that the invention facilitates inspection of a vehicle to detect the presence of prior damage (column 2, lines 14 - 19), which would have been of value in analyzing the condition of the asset and evaluating repair/replacement options recited in Watson (Title). Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Busch with the art of Watson to produce the claimed invention.

13.5. Regarding claims 9, 28 and 47, Watson teaches:

13.5.1. Identifying one or more systems in the apparatus, each of the systems comprising one or more components (column 2, line 67; and column 3, lines 1 - 5; and column 2, lines 41 - 54).

13.5.2. Identifying one or more systems functions for each of the systems, wherein the operations specifications also comprise the component system functions (column 2, lines 41 - 54).

14. Claims 10 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson and Onodera and Busch, in view of common knowledge in the art.

14.1. Regarding claims 10 and 48, Watson teaches:

14.1.1. Obtaining at least a portion of the standards from stored information on each of the components (figure 1, element 134; and column 8, lines 58 - 64; and column 24, lines 46 - 50).

14.2. Regarding claims 10 and 48, Watson does not specifically teach:

14.2.1. Obtaining at least a portion of the manufacturing standards from stored information on each of the components.

14.2.2. Researching each of the components to obtain at least a portion of the manufacturing standards.

14.3. Regarding claims 10 and 48, Busch teaches:

14.3.1. Obtaining manufacturing standards (figure 13, element 1302; and figure 15, element 1504; and column 6, lines 14 - 22).

14.4. Regarding claims 10 and 48, Official Notice is taken that it was old and well known in the art at the time of invention to research data for an item. The motivation to combine would have been the need to obtain data needed to evaluate alternatives and make a decision regarding remanufacturing options.

15. Claims 63 - 64, 76 - 77 and 89 - 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson in view of Onodera, further in view of Busch (U.S. Patent 6,052,631).

15.1. Regarding claims 63, 76 and 89, Watson does not specifically teach:

15.1.1. Determining one or more component functions associated with each component.

15.1.2. Determining one or more manufacturing standards for each of the components, wherein the operations specifications comprise the component functions and the manufacturing standards.

15.2. Regarding claims 63, 76 and 89, Onodera teaches:

15.2.1. Determining one or more component functions associated with each component (page 52, section 4.1, paragraph 2, items labeled a and b).

15.3. Regarding claims 63, 76 and 89, Busch teaches:

15.3.1. Determining one or more manufacturing standards for each of the components (figure 13, element 1302; and figure 15, element 1504; and column 6, lines 14 - 22).

15.4. The motivation to use the art of Busch with the art of Watson would have been obvious given the benefit recited in Busch that the invention facilitates inspection of a vehicle to detect the presence of prior damage (column 2, lines 14 - 19), which would have been of value in analyzing the condition of the asset and evaluating repair/replacement options recited in Watson (Title).

15.5. The motivation to use the art of Onodera with the art of Watson would have been the statement recited in Onodera that the RPN approach is used in analyses of maintenance efforts (page 55, section 5.2), and that Failure Mode and Effects Analysis is especially useful in maintainability analyses (page 50, section Summary & Conclusions, first paragraph), and further, that Failure Mode and Effects Analysis is useful in diagnosis of degradation of equipment (page 54, section 4.5).

15.6. Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Onodera and the art of Busch with the art of Watson to produce the claimed invention.

15.7. Regarding claims 64, 77 and 90, Watson teaches:

15.7.1. Identifying one or more systems in the apparatus, each of the systems comprising one or more components (column 2, line 67; and column 3, lines 1 - 5; and column 2, lines 41 - 54).

15.7.2. Identifying one or more systems functions for each of the systems, wherein the operations specifications also comprise the component system functions (column 2, lines 41 - 54).

16. Claims 68 - 69, 81 - 82 and 94 - 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson in view of MilStd1629A.

16.1. Regarding claims 68, 81 and 94, Watson teaches the limitations taught in claim 5 above.

16.2. Regarding claims 68, 81 and 94, Watson does not specifically teach the limitations described in claim 5 above.

16.3. Regarding claims 68, 81 and 94, MilStd1629A teaches the limitations taught in claim 5 above.

16.4. The motivation to use the art of MilStd1629A with the art of Watson would have been obvious given the statement in MilStd1629A that its use is called for in maintainability and maintenance plan analysis (page iii, Foreword, last paragraph), and its use in maintenance requirements (section 1. SCOPE, paragraph 1.1). Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of MilStd1629A with the art of Watson to produce the claimed invention.

16.5. Regarding claims 69, 82 and 95, Watson does not specifically teach:

16.5.1. Identifying one or more subsystems, wherein the determining a functional hierarchy and interrelation determines the functional hierarchy and interrelation of the systems, subsystems and components, wherein the assessing a viability of a plurality of remanufacturing options for each of the items is also based on the functional hierarchy and interrelation of the systems, subsystems and components.

16.6. Regarding claims 69, 82 and 95, MilStd1629A teaches

16.6.1. Identifying one or more subsystems, wherein the determining a functional hierarchy and interrelation determines the functional hierarchy and interrelation of the systems, subsystems and

components (page 103-4, figure 103.1 Example of FMECA- maintainability information worksheet format, upper left quadrant, elements SYSTEM/SUBSYSTEM DESCRIPTION and SYSTEM/SUBSYSTEM NOMENCLATURE; and page 101-9, figure 101-1 Example of a functional block diagram).

17. Claims 19, 37 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson and Onodera, in view of Lobley (U.S. Patent 6,151,565).

17.1. Regarding claims 19, 37 and 57, Watson teaches:

17.1.1. A plurality of measurement criteria (column 5, lines 65 - 67 and column 6, lines 1 - 5; column 8, lines 1 - 4)

17.1.2. A plurality of remanufacturing options (Title; Abstract; and column 2, lines 41 - 58; and column 6, lines 6 - 17).

17.2. Regarding claims 19, 37 and 57, Watson does not specifically teach:

17.2.1. Determining a weight for each of a plurality of measurement criteria.

17.2.2. Rating each of the remanufacturing options for each of the plurality of measurement criteria.

17.2.3. Determining a total score for each of the remanufacturing options based on the weight and the scoring, wherein an optimal one of the remanufacturing options has the highest score.

17.3. Regarding claims 19, 37 and 57, Lobley teaches:

17.3.1. Determining a weight for each of a plurality of measurement criteria (figure 6, columns labeled Factor and Weight; and column 3, lines 28 - 50; and column 7, lines 33 - 51).

17.3.2. Rating each of the remanufacturing options for each of the plurality of measurement criteria (figure 6, section labeled Standards; and column 3, lines 28 - 50; and column 7, lines 33 - 51).

17.3.3. Determining a total score for each of the remanufacturing options based on the weight and the scoring, wherein an optimal one of the remanufacturing options has the highest score (column 7, lines 33 - 51; and column 1, lines 19 - 36).

17.4. The motivation to use the art of Lobley with the art of Watson would have been the benefit recited in Lobley that a decision support system provides a method for determining the most preferred alternative of several possible alternatives (paraphrased from column 1, lines 19 - 36), and further that the Lobley method obviates or mitigates at least some disadvantages of the prior art (column 2, lines 28 - 35). Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Lobley with the art of Watson to produce the claimed invention.

18. Claims 98, 100, 101, 103, 104 and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (U.S. Patent 6,581,045) in view of Lobley (U.S. Patent 6,151,565).

18.1. Regarding claims 98, 101 and 104, Watson teaches:

18.1.1. A method for analyzing a value of a plurality of remanufacturing options (Title; and Abstract; and column 2, lines 19 - 58; and column 4, lines 35 - 40; and column 6, lines 5 - 17 and 49 - 60).

18.1.2. A computer readable medium having stored thereon instructions which when executed by at least one processor perform steps (figures 12 and 13; especially figure 12, element 280).

18.1.3. A plurality of measurement criteria (column 5, lines 65 - 67 and column 6, lines 1 - 5; column 8, lines 1 - 4)

18.1.4. A plurality of remanufacturing options (Title; Abstract; and column 2, lines 41 - 58; and column 6, lines 6 - 17).

18.2. Regarding claims 98, 101 and 104, Watson does not specifically teach:

18.2.1. determining a weight for each of a plurality of measurement criteria;

18.2.2. determining a rating for each of the plurality of remanufacturing options for each of the plurality of measurement criteria;

18.2.3. determining a measurement criteria score for each of the plurality of remanufacturing options based on the determined weight and the determined rating; and

18.2.4. determining a total score for each of the remanufacturing options based on the determined measurement criteria scores for each of the plurality of remanufacturing options, wherein an optimal one of the remanufacturing options has the highest score.

18.3. Regarding claims 98, 101 and 104, Loble teaches:

18.3.1. determining a weight for each of a plurality of measurement criteria (figure 6, columns labeled Factor and Weight; and column 3, lines 28 - 50; and column 7, lines 33 - 51).

18.3.2. determining a rating for each of the plurality of options for each of the plurality of measurement criteria (figure 6, section labeled Standards; and column 3, lines 28 - 50; and column 7, lines 33 - 51).

18.3.3. determining a measurement criteria score for each of the plurality of options based on the determined weight and the determined rating (figure 6, column labeled Score; and column 3, lines 28 - 50; and column 7, lines 33 - 51).

18.3.4. determining a total score for each of the options based on the determined measurement criteria scores for each of the plurality of options, wherein an optimal one of the options has the highest score (column 7, lines 33 - 51; and column 1, lines 19 - 36).

18.4. Regarding claims 100, 103 and 106, Watson does not specifically teach:

18.4.1. That determining a measurement criteria score is a product of the determined weight and the determined rating for each of the plurality of measurement criteria for each of the plurality of remanufacturing options.

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18.5. Regarding claims 100, 103 and 106, Lobley teaches:

18.5.1. That determining a measurement criteria score is a product of the determined weight and the determined rating for each of the plurality of measurement criteria for each of the plurality of options (figure 6, columns labeled Factor and Weight and Score, and section labeled Standars; and column 3, lines 28 - 50; and column 7, lines 33 - 51).

18.6. The motivation to use the art of Lobley with the art of Watson would have been the benefit recited in Lobley that a decision support system provides a method for determining the most preferred alternative of several possible alternatives (paraphrased from column 1, lines 19 - 36), and further that the Lobley method obviates or mitigates at least some disadvantages of the prior art (column 2, lines 28 - 35).

18.7. Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Lobley with the art of Watson to produce the claimed invention.

19. Claims 99, 102 and 105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson and Lobley, in view of Eckenrode (Eckenrode, Robert T.; "Weighting multiple criteria", 1965, Management Science, Volume 12, Number 3).

19.1. Regarding claims 99, 102 and 105, Eckenrode teaches the use of a paired comparison method to determine weights for criteria (page 181, last paragraph; and page 182, figure 2; and page 184, paragraph labeled 3. The Three Paired Comparisons Methods).

19.2. The motivation to use the art of Eckenrode with the art of Watson would have been the benefit of using paired comparisons to derive criteria weights used multiply ranks of the criteria, and then the weight-rank numbers were summed to arrive at a total score to make a decision (page 192, second paragraph that starts with "Several years ago . . ."). Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Eckenrode with the art of Watson to produce the claimed invention.

Conclusion

20. Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell L. Guill whose telephone number is 571-272-7955. The examiner can normally be reached on Monday - Friday 9:00 AM - 5:30 PM.
22. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist: 571-272-2100.
23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG



Russ Guill
Examiner
Art Unit 2123

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